Assessing Vegetation Restoration Opportunities for a Northern Region Resources Planning Act Alternative using Forest Inventory and Assessment Permanent Plot Data and the Landscape Model, Simulating Vegetative Patterns and Processes at Landscape Scales (SIMPPLLE).

Presented By David Atkins, Forest Health Monitoring Coordination, R1/R4

STEPS IN USING SIMPPLLE to identify the needs for restoration, conversion or maintenance treatments:

1. Use SIMPPLLE to create a spatially explicit historic landscape by making long-term simulations without fire suppression starting with the current landscape.

2. Make multiple simulations with the resulting historic landscape to develop frequencies of cover-type, size-class / structure, and density for each vegetation polygon.

3. Make multiple simulations with the existing landscape to develop frequencies of cover-type, size-class / structure, and density for each vegetation polygon for three to five decades.

4. For each set of frequencies, current trend and historic, select the attributes (species = cover type, size-class/structure, and density) that occur with the highest two levels of occurrences and compare.

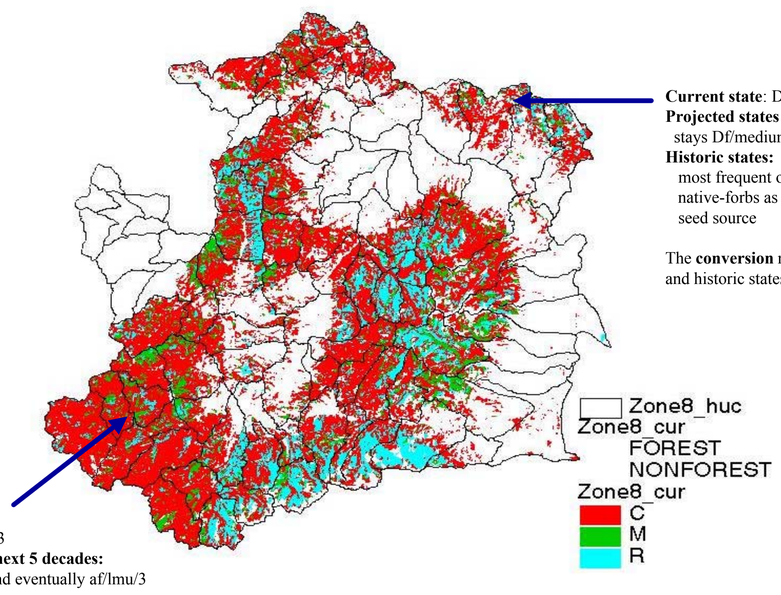
COMPARISON LOGIC for determining treatment need:

If at least one of the two most frequently occurring current trend cover-types does not match the two most frequently occurring cover-types, the need is for **CONVERSION.**
If there is a match (at least one of the two) within both cover-type and density, but the size-class doesn't match, the need is for **RESTORATION.**
If there is a match within both cover-type and size-class, but the density doesn't match, the need is for **RESTORATION.**
If all three attributes match (at least one of the two values for each) the need is for **MAINTENANCE.**

A typical side drainage within the Bitterroot Landscape.

Pintler Ranger District

Examples for CONVERSION need

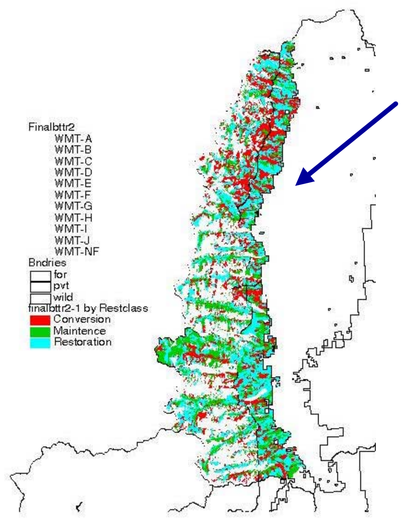


Current state: Df/medium/3
Projected states over the next 5 decades:
stays Df/medium/3
Historic states:
most frequent occurrences varies between upland-grasses and native-forbs as a result of frequent fires and lack of adjacent Df seed source

The **conversion** need results from the comparison between the pr and historic states

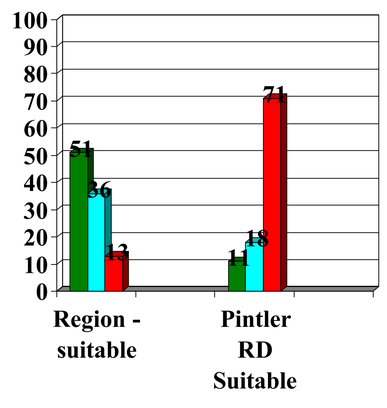
Current state: lp/medium/3
Projected states over the next 5 decades:
changes to lp-af/mmu/3 and eventually af/lmu/3
Historic states:
most frequent occurrences varies between lp/pole/3, lp/pts/3, qa/pole/4 as a result of frequent fires

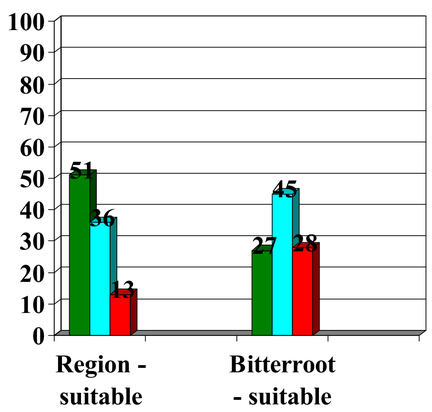
The **conversion** need results from the comparison between the projected and historic states

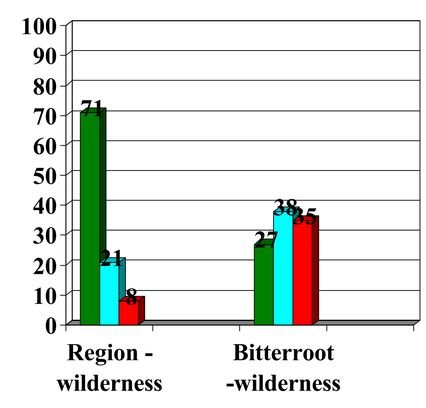


Bitterroot Landscape with detailed treatment classes

Treatment categories of Montana FIA plots compared to two Montana landscapes. Indicates the important differences of a landscape setting.
One near Philipsburg, 1,500,000 acres, and the other near Hamilton, 500,000 acres.







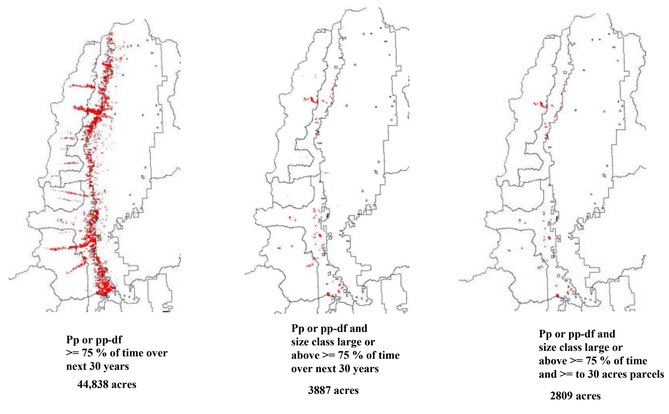
Example of Wildlife Habitat Maintenance over Time

The model, SIMPPLLE, can provide an interpretation of the probability of achieving desired vegetative conditions across a landscape. At right, is an example for flammulated owl habitat using multiple simulations and displaying a probability of 75% of achieving desired conditions.

The level and location of disturbance processes vary with each simulation. Thus the results from many simulations can be used to provide a probability (frequency distribution) for the attributes of species, size class/structure and canopy coverage.

The necessary criteria for a species can include a given minimum probability level of occurrence of desired habitat conditions.

Flammulated Owl – Future Conditions (based on probabilities from ten SIMPPLLE simulations of 30 yrs. each)



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